

FMOSTHAB55P03-H

List

List.....1

Package outline.....2

Features.....2

Applications.....2

Mechanical data.....2

Maximum ratings2

Electrical characteristics.....3

Rating and characteristic curves.....4~5

Pinning information.....6

Marking.....6

Suggested solder pad layout.....6

Packing information.....7

Reel packing.....8

Suggested thermal profiles for soldering processes.....8

-55A -30V P-Channel Trench Enhancement Mode Power MOSFET

- $-V_{DS} = 30V$, $-I_D = 55A$.
- $R_{DS(ON)} \leq 8.2m\Omega$, @ $-V_{GS} = 10V$, $-I_D = 15A$.
- $R_{DS(ON)} \leq 13m\Omega$, @ $-V_{GS} = 4.5V$, $-I_D = 10A$.
- High density cell design for ultra-low on-resistance.
- Fully characterized avalanche voltage and current.
- Excellent package for good heat dissipation.
- Special process technology for high ESD capability.
- Lead-free parts meet RoHS requirements.
- Halogen-free (IEC 61249-2-21).

- Battery and loading switching.

- Epoxy:UL94-V0 rated flame retardant.
- Case : Molded plastic, T3333P8 (DFN3333-8).
- Mounting Position : Any.

[illegible]

Parameter	Symbol	Ratings	Unit
Drain-Source voltage	$-V_{DS}$	30	V
Gate-Source voltage	V_{GS}	± 20	V
Continuous drain current (Note1)	$-I_D$	55	A
Pulsed drain current (Note2)	$-I_{DM}$	200	A
Avalanche energy, single pulse (Note3)	E_{AS}	150	mJ
Power dissipation (Note1)	P_D	50	W
Thermal resistance,Junction to ambient (Note6)	$R_{\theta JA}$	83.3	°C/W
Thermal resistance,Junction to case (Note1)	$R_{\theta JC}$	2.5	
Operating junction temperature	T_J	+150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

FMOSTHAB55P03-H

Electrical characteristics (At $T_J=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain-Source breakdown voltage	$-BV_{DSS}$	$-I_D=1mA, V_{GS}=0V$	30			V
Drain-Source leakage current	$-I_{DSS}$	$-V_{DS}=24V, V_{GS}=0V$			1	μA
		$-V_{DS}=24V, V_{GS}=0V, T_J=125^{\circ}C$			100	
Gate-Source leakage current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
On characteristics (Note4)						
Gate threshold voltage	$-V_{GS(th)}$	$V_{DS}=V_{GS}, -I_D=250\mu A$	1.0	1.5	2.5	V
Static drain-source on-resistance	$R_{DS(ON)}$	$-V_{GS}=10V, -I_D=15A$		6.5	8.2	m Ω
		$-V_{GS}=4.5V, -I_D=10A$		8.4	13	
Dynamic characteristics (Note 4,5)						
Input capacitance	C_{iss}	$-V_{DS}=15V, V_{GS}=0V, f=1.0MHz$		3259		pF
Output capacitance	C_{oss}			404		
Reverse transfer capacitance	C_{rss}			282		
Switching characteristics (Note 4,5)						
Total gate charge	Q_g	$-V_{GS}=4.5V, -V_{DS}=10V, -I_D=10A$		30		nC
Gate-Source charge	Q_{gs}			8.7		
Gate-Drain Charge	Q_{gd}			8.3		
Drain-Source diode characteristics and maximum ratings						
Drain-Source diode forward voltage (Note4)	$-V_{SD}$	$-I_S=10A, V_{GS}=0V$			1.2	V
Body diode reverse recovery time (Note1)	$-I_S$				55	A
Body diode reverse recovery charge (Note2)	$-I_{SM}$				200	A

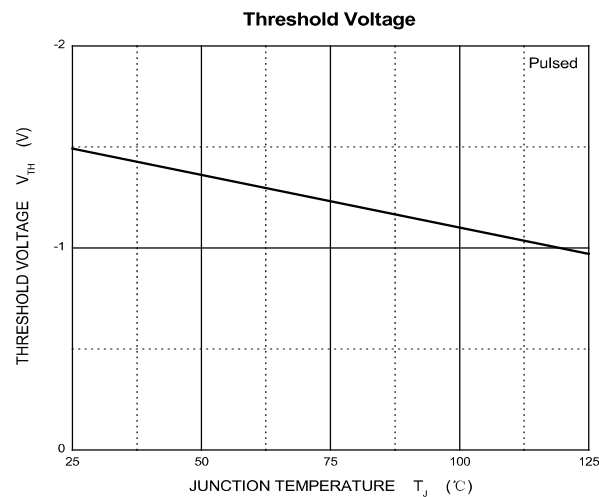
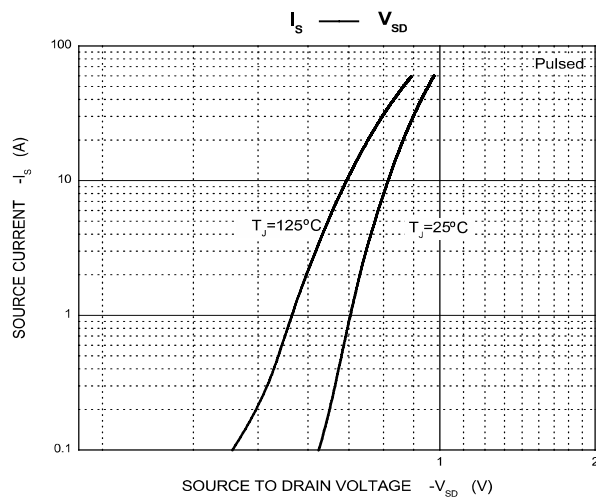
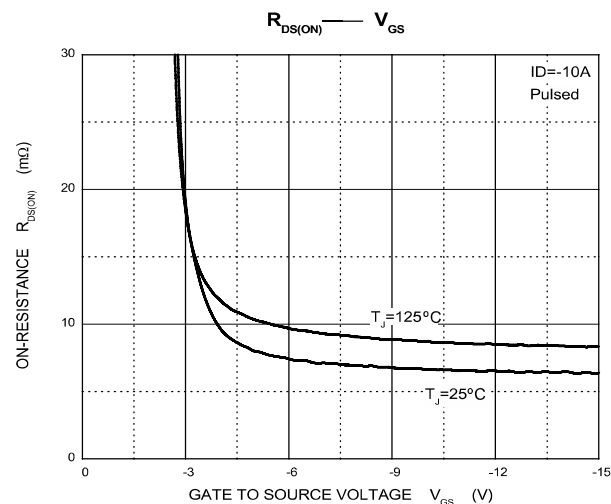
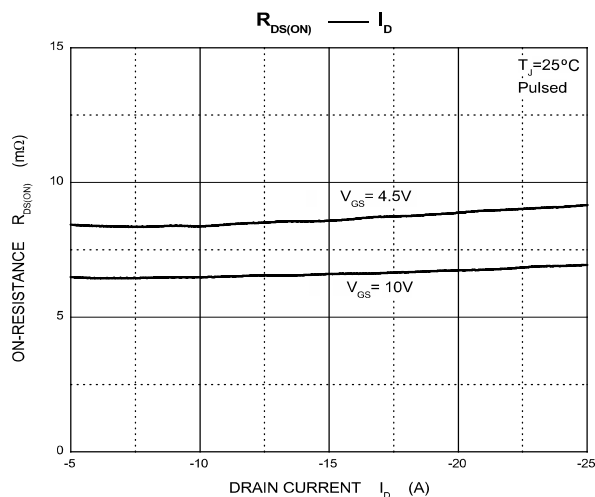
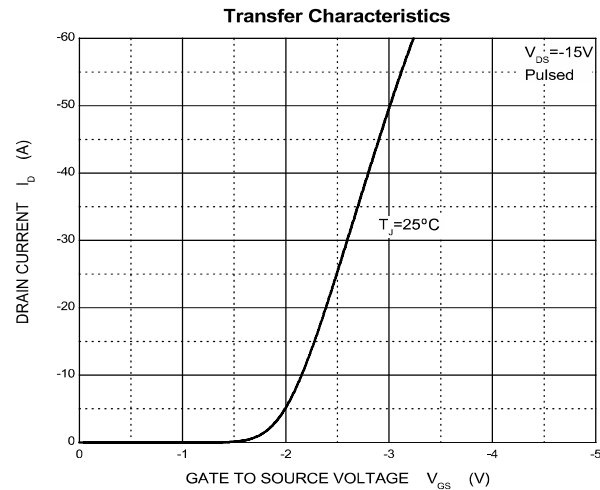
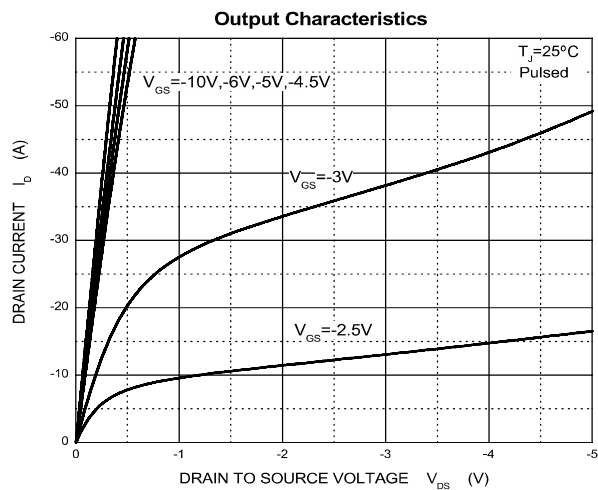
Note : 1. $T_C=25^\circ\text{C}$ limited only by maximum temperature allowed.2. $P_w \leq 10\mu\text{s}$, duty cycle $\leq 1\%$.3. E_{AS} condition: $-V_{DS}=15\text{V}$, $-V_{GS}=10\text{V}$, $L=0.5\text{mH}$, $R_\theta=25\Omega$, starting $T_J=25^\circ\text{C}$.4. Pulse test: pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

5. Guaranteed by design, not subject to production.

6. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² FR-4 board with 2oz. copper, in a still air environment with $T_A=25^\circ\text{C}$.

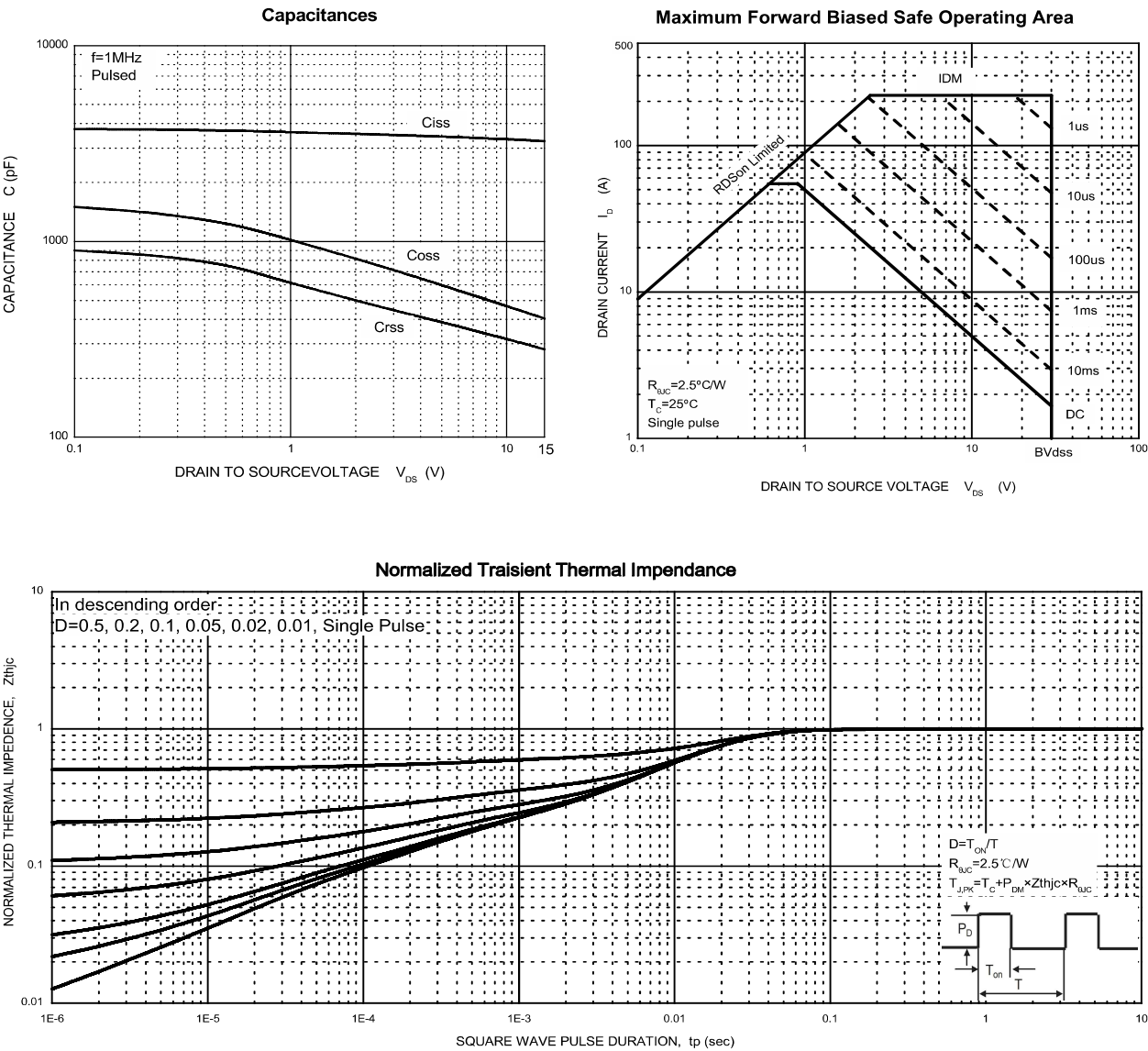
FMOSTHAB55P03-H

Rating and characteristic curves



FMOSTHAB55P03-H

Rating and characteristic curves

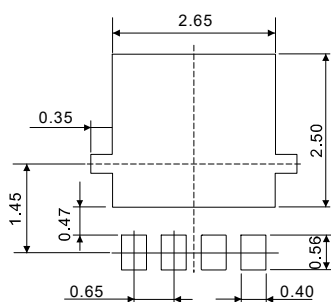


Pinning information

Pin	Simplified outline	Symbol
Pin 1, 2, 3 Source Pin 4 Gate Pin 5, 6, 7, 8 Drain	Top view Bottom view	

Type number	Marking code
FMOSTHAB55P03-H	AB55P03

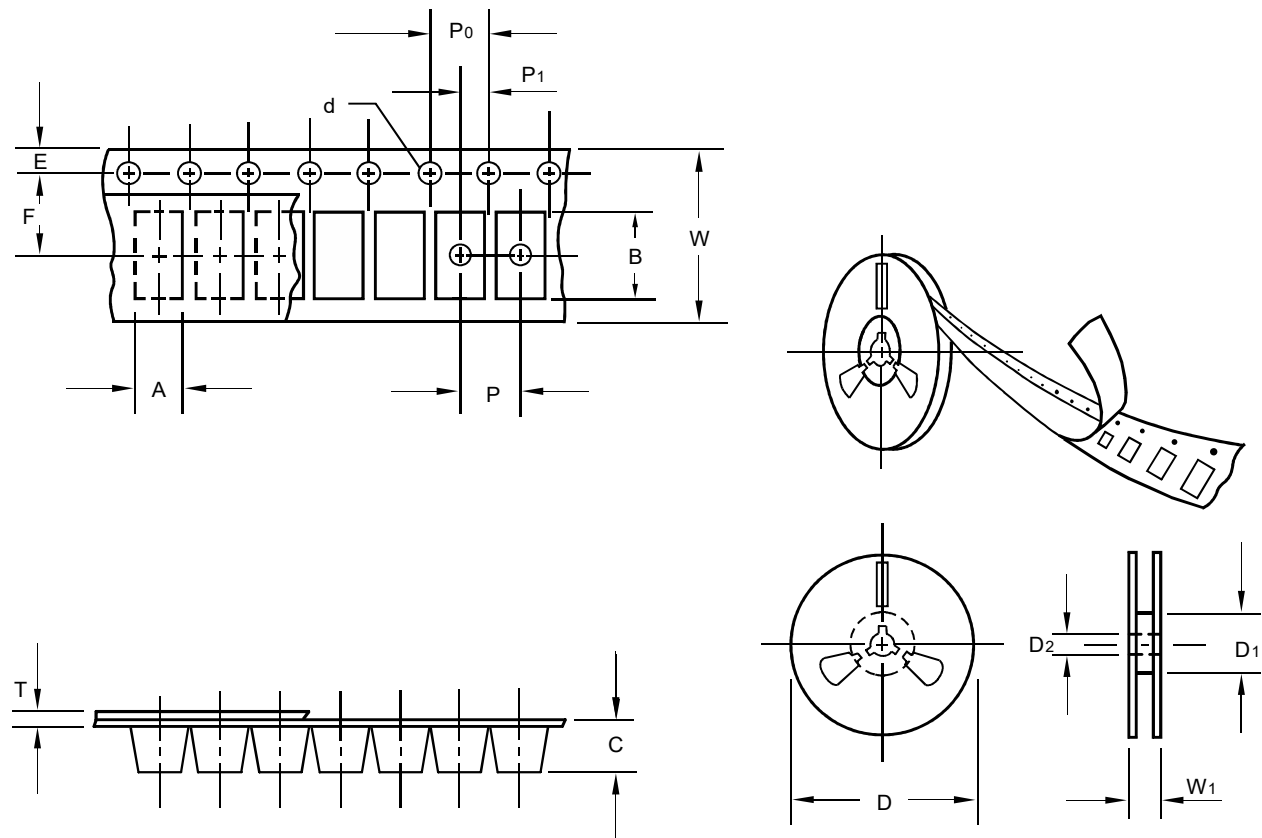
T3333P8



1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

FMOSTHAB55P03-H

Packing information



unit:mm

Item	Symbol	Tolerance	T3333P8
Carrier width	A	0.1	3.55
Carrier length	B	0.1	3.55
Carrier depth	C	0.1	1.10
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	330.00
13" Reel inner diameter	D1	min	100.00
7" Reel outside diameter	D	2.0	-
7" Reel inner diameter	D1	min	-
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	5.50
Punch hole pitch	P	0.1	8.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	12.00
Reel width	W1	1.0	17.60

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

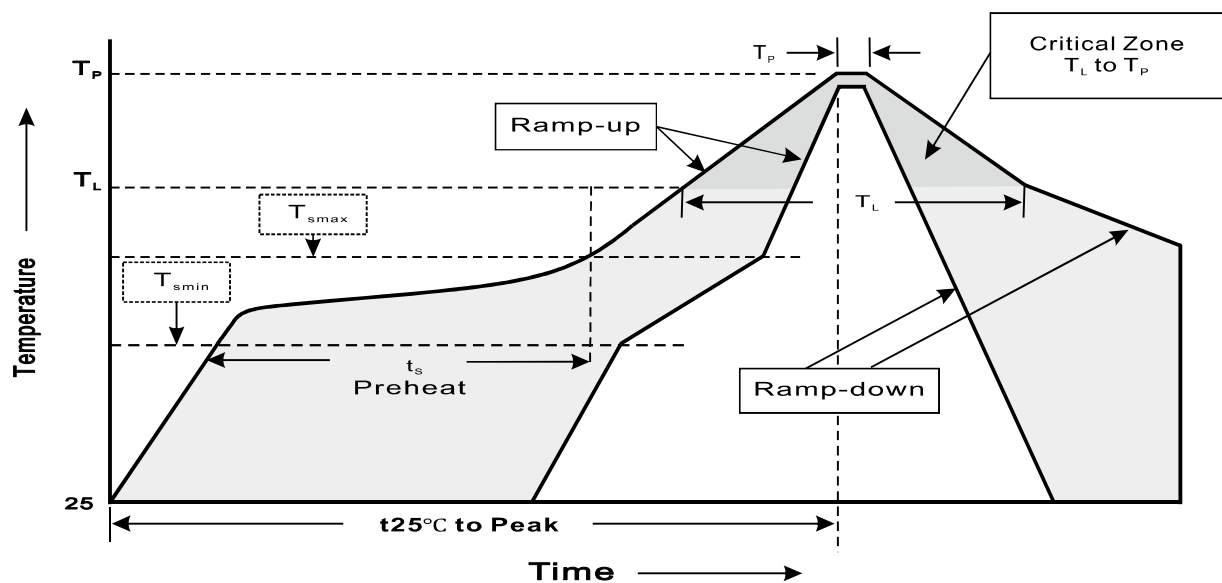
FMOSTHAB55P03-H

Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)
T3333P8	13"	5,000	8.0	10,000	355*335*38	330	350*330*360	80,000

Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile feature	Soldering Condition
Average ramp-up rate (T_L to T_p)	< 3°C/sec
Preheat -Temperature Min (T_{smin}) -Temperature Max (T_{smax}) -Time (min to max) (t_s)	150°C 200°C 60 ~ 120sec
T_{smax} to T_L -Ramp-up rate	< 3°C/sec
Time maintained above: -Temperature (T_L) -Time(T_L)	217°C 60 ~ 260 sec
Peak Temperature(T_p)	255°C -0/+5°C
Time within 5°C of actual peak Temperature(T_p)	10 ~ 30sec
Ramp-down rate	< 6°C/sec
Time 25°C to peak temperature	< 6 minutes